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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Gamma Globulins and Their Clinical Significance

The separation of gamma globulins from human plasma for use in the prevention and treatment of infectious diseases was made possible during World War II by the procurement of large plasma pools by the American Red Cross and by the successful development of human plasma-fractionation techniques. Although the gamma-globulin fraction (fraction II of Cohn) contains almost all the plasma antibodies against many bacteria and viruses, the specific antibody content of any given lot of gamma globulin depends entirely upon the particular immune antibodies present in the plasma of the donors. The concentration and variety of specific antibodies depends upon previous immunizations, previous clinical and inapparent infections with endemic and epidemic infectious agents, and the time of such events in relation to the time of the blood donation. Everyone's past immunologic experience is somewhat different, but variations in antibody content against common infectious agents like the measles virus in different lots of gamma globulins are minimized by pooling of the plasma of a large number of persons before fractionation.

In addition to the differences in antibody content among individuals in the same community, there may be wide variations between whole populations in different geographic areas. For example, lots of gamma globulin obtained from persons in the eastern United States contain higher titers of diphtheria antitoxin than lots derived from plasma obtained in the Far West. On the other hand, western—but not eastern—gamma globulin contains antibodies to the virus of western equine encephalitis. However, for the ubiquitous diseases in which gamma globulin is most commonly used, such as measles and infectious hepatitis, antibody titers appear to be fairly uniform in lots derived from different parts of the country and even from other countries.

Pooled concentrated gamma globulin is derived from plasma pools of normal healthy donors. It contains antibodies in a titer adequate in most cases for the prevention or attenuation of such viral infections as measles, German measles, infectious hepatitis, and poliomyelitis, and for the prophylactic treatment of recurrent invasive bacterial infections in agammaglobulinemia. However, such gamma-globulin preparations often contain antibody titers too low to be consistently effective against certain other infections. Hyperimmune or convalescent-phase gamma globulin may than be effective. This is derived from the pooled plasma of individuals 4 to 8 weeks after specific immunization or at a comparable time during convalescence from a particular infection. It has been especially useful in the control of generalized vaccinia and its complications, in the prevention of mumps orchitis and pertussis, and should prove to be more consistently potent than ordinary gamma globulin in the prevention of German measles.

Concentrated gamma globulin is given intramuscularly or subcutaneously only—never intravenously. Intravenous administration may cause severe cardiac arrhythmia, hypotension, and hyperpyrexia in sick children. Intramuscular injections provide a peak serum level by the second day after injection so that intravenous administration under ordinary circumstances offers no particular advantage with respect to time.

Toxic reactions are not uncommon. A figure of 1.2% has been reported after small intramuscular doses for measles prevention. A local inflammatory reaction causing pain and tenderness at the site of injection, mild systemic reactions of malaise, headache, and low-grade fever may occur. More severe reactions are rare, but a few isolated cases of angioneurotic edema, nephrotic syndrome, neuromyelitis optica, and even anaphylactic shock have been reported after routine administration of gamma globulin to a large number of persons throughout the country.

Gamma globulin has proved effective in the prevention of severe recurrent bacterial infections in all three forms of agammaglobulinemia: transient agammaglobulinemia of infancy as well as the congenital and acquired forms of the disease. Antibiotics have been more effective than gamma globulin in terminating any specific infection, but not in long-term prophylaxis. In some cases, both antibiotics and gamma globulin have been required.

Measles. The measles virus will cause clinical infection in 80 to 85% of nonimmune persons after intimate exposure at home. Gamma globulin is effective in both preventing and attenuating measles. Complete prevention can be attained in 80% of intimately exposed, susceptible children by a dose of 0.1 ml. per pound of body weight given during the first 6 days after exposure. Attenuation can usually be attained by a dose of 0.02 ml. per pound given during the first 6 days after exposure. The authors are of the opinion that all healthy nonimmune exposed children should receive

attenuating doses of gamma globulin. Attenuation markedly reduces the number of complications frequently seen in unmodified cases. There is suggestive evidence that attenuation also lowers the prevalence of encephalitis and diminishes the severity of an attack when it occurs in the face of gamma-globulin prophylaxis.

Complete prevention may be indicated in the following clinical settings: in children up to 3 years of age when mortality rates are highest; in a patient suffering with a concurrent illness; in debilitated persons; in nonimmune pregnant women who have been exposed, in whom measles infection may induce premature labor and even abortion; in persons who must travel or continue work during the anticipated period of symptomatic illness; and in those who are in an environment where they may infect a large group, for example, in a hospital ward, institution, or military establishment. If measles occurs in a patient on a hospital ward, one may keep the ward open by injecting all susceptible exposed patients and all patients admitted during the next 3 weeks with 0.1 ml. per pound of body weight. Such passive protection lasts about 3 weeks. Therefore, if a secondary case occurs, gamma globulin in the same dosage should be repeated no later than 3 weeks after the first dose was given.

German measles. Recent controlled studies have corroborated suggestive observations that immune gamma globulin is effective therapy in the prevention of German measles if given before exposure or early in the incubation period.

A previous study of an institutional outbreak of rubella found that protection after exposure could be attained with a dose of 0.1 ml. per pound of body weight beginning 3 days after injection and lasting for 15 days. In several persons, rubella developed within 3 days after injection of gamma globulin, suggesting that it is not protective in this dosage if given late in the incubation period. Because the incubation period is 10 to 21 days, gamma globulin should be administered within a week after exposure.

The only direct indication for the prevention of German measles is in pregnant women exposed to the rubella virus during the first 4 months of pregnancy. Prospective studies show that the postrubella syndrome occurs in 10 to 12% of newborn infants whose mothers contracted rubella during the first trimester of pregnancy—a rate of congenital malformations that is 6 to 8 times that in controls. The postrubella syndrome is characterized by congenital cardiac defects (especially patent ductus arteriosus), blindness (congenital cataracts), deafness, and sometimes microcephaly with mental deficiency. Gellis has used a dose of 20 to 30 ml. of gamma globulin pooled from three different lots to minimize variations in antibody content. No clinical rubella has occurred in his series of 45 pregnant women initially exposed to the disease who were given this dosage.

Infectious hepatitis (viral hepatitis A). Of all the viral infections in which gammaglobulin preventive therapy has been studied, the most

consistently effective results have been observed in measles and infectious hepatitis. Both of these diseases produce lifelong immunity after clinical or subclinical infection. More than 95% of all adults are estimated to have immunity to measles; at least 40% have immunity as judged by skin tests to infectious hepatitis, but the infrequency of this disease in adults over 30 suggests that inapparent infection and immunity are much more frequent than this figure.

Protection against infectious hepatitis can be achieved with a dose as low as 0.01 ml. per pound of body weight given within 7 days before the onset of symptoms. Because the incubation period is 21 to 42 days, it should probably be given within 14 days after exposure.

Prevention is indicated in the following clinical settings: in children under one year of age in whom the disease is often serious; in children with a concurrent illness; in adults in whom the disease may be severe and especially in postmenopausal, pregnant, or amenorrheic women who are particularly prone to a stormy course; and in persons going into endemic areas (underdeveloped countries, particularly tropical, where sanitation is poor).

At this time, there is little evidence that gamma globulin is effective in the prophylaxis of serum hepatitis or homologous-serum jaundice.

Poliomyelitis. Gamma-globulin prophylaxis apparently has a modifying effect on the paralytic complications of clinical poliomyelitic infections if given during the first 5 to 7 days of the incubation period of 10 to 12 days.

Among an unvaccinated population, gamma globulin is probably most effectively used when given to the families of victims of paralytic poliomyelitis. In about 41% of household contacts, a subclinical infection will develop as manifested by the appearance of virus in feces. Three to five percent of all families with a primary paralytic case will be stricken with a second paralytic case—a prevalence ten times that among the other families of the community. Of the secondary cases among such household contacts, 60% will occur within 5 days after diagnosis of the primary case. If gamma globulin were given to these contacts at the time of diagnosis, this group would not appear to be protected. However, another 30% of secondary cases will occur from 6 to 12 days after diagnosis of the primary case, and this group could be expected to have a paralytic attack of lesser severity if gamma globulin were given at the time of the diagnosis of the primary case. The remaining 10% of patients with secondary cases occurring 13 to 30 days after the primary case among household contacts would be protected by gamma globulin. The two groups occurring after the fifth day (40% of the total household contacts) who should benefit from gamma globulin include a higher proportion of older children and adults who ordinarily have a higher prevalence of bulbar complications and of severe paralysis and a higher mortality rate.

At the end of 1957, 40,000,000 persons in the United States under the age of 40 were still unvaccinated against poliomyelitis. Moreover,

an inadequate course of vaccine does not necessarily confer protection. If an outbreak of poliomyelitis occurred in a confined population, limitations in the supply of gamma globulin and the logistic problems involved in its rapid injection into a large number of people might force a system of priorities. Such a system must always try to reconcile a number of epidemiologic facts: young children have the highest attack rate of infection; adults have a much lower attack rate, but those attacked have a much higher rate of severe paralysis and mortality; pregnant women are particularly vulnerable; the attack rate among household contacts of paralytic cases is ten times as high as that in the general community; bulbar poliomyelitis occurs more frequently among those who have had a previous tonsillectomy. There seems little doubt that gamma globulin is most effective in protection against poliomyelitis when given before exposure. Much of the argument over its use arises from the inherent practical difficulties—so different from the situation in measles—of recognizing when exposure has taken place and hence of administering gamma globulin immediately after exposure.

Variola and vaccinia. Kempe et al. recently introduced the use of hyperimmune gamma globulin in the prophylaxis of smallpox and in the therapy of serious dermal complications of vaccination; eczema vaccinatum, progressive vaccinia, and generalized vaccinia.

The combination of hyperimmune gamma globulin and vaccination appears to be the therapy of choice in the prophylactic treatment of a susceptible person exposed to smallpox. Gamma globulin given 12 to 24 hours after vaccination does not impair the development of the active immune response. In fact, there was a lower prevalence of smallpox and a lower mortality in one small series after the combined gamma globulin and vaccination therapy than after vaccination alone.

Eczema vaccinatum is a serious disease with a 30 to 40% mortality during the first 2 years of life. Hyperimmune gamma globulin has been used with encouraging results, both prophylactically for children with eczema exposed to a vaccinated sibling or entering an endemic area, and therapeutically for the treatment of established cases at dosages of 0.6 to 1.0 ml. per kilogram of body weight and repeated if necessary.

Progressive vaccinia is one of the most serious complications of vaccination. The primary vaccination site fails to follow a normal course of vesiculation with subsequent umbilication and healing, but continues to enlarge by direct extension and satellite vesicles. A viremia occurs with dissemination of new lesions of the skin, mucous membranes, and internal organs.

Generalized vaccinia is characterized by the appearance of vesiculopustular skin lesions 6 to 10 days after vaccination as the result of a viremia. It is usually benign with a self-limited course, but hyperimmune gamma globulin in a dose of 0.6 to 1.0 ml. per kilogram of body weight may halt the further appearance of new satellite lesions within 24 to 48 hours after administration.

Mumps. Ordinary gamma globulin had no effect either in preventing mumps or in lowering the incidence of orchitis in military personnel, even when given in 50-ml. doses with 24 hours after the onset of parotitis. But gamma globulin prepared from mumps convalescent serum, given in a dose of 20 ml. lowered the incidence of orchitis from 27 to 8% when administered within 24 hours after the onset of parotitis.

Other viral diseases. The use of gamma globulin in many other diseases has been tried and the results recorded as case reports or small series that are suggestive but not statistically significant.

Aside from its usefulness in the general prevention of bacterial infection in patients with agammaglobulinemia, gamma globulin has found application in the prophylaxis and therapy of a variety of specific bacterial infections. The injection of 2.5 ml. of hyperimmune antipertussis gamma globulin with a repeated dose 5 to 7 days later has been effective in preventing pertussis in about 75% of nonimmune children exposed to the disease. The gamma globulin should be given as early in the incubation period as possible. It may also be used in larger doses in the treatment of pertussis in infants. Gamma globulin has been used in experimental and clinical infections due to *Staph. aureus*, *S. typhimurium*, *Pseudomonas aeruginosa* and *proteus*. The exact mechanism of action of gamma globulin in these cases is not clear, but the present evidence suggests that protection is afforded by its specific antibody content, not nonspecific factors. It has been reported that gamma globulin and various antibiotics act synergistically and effectively against a number of bacteria; this combination has been used successfully in the treatment of cases of chronic osteomyelitis and chronic pyelonephritis after antibiotics alone had been ineffective. There has been an increasing tendency toward giving gamma globulin prophylactically to children who are afflicted with repeated attacks of otitis media and tonsillitis, but the results are inadequate at this time for a sound clinical judgment.

Because human tetanus and diphtheria antitoxins are gamma globulins, hyperimmune gamma globulin might be useful in the unusual cases in which the specific person is allergic to equine or bovine antiserum. Commercial production of such human antitoxins is just beginning. (Gross, P.A.M., Gitlin, D., Janeway, C.A., *The Gamma Globulins and Their Clinical Significance (Concluded) IV. Therapeutic Uses of Gamma Globulins*: New England J. Med., 260:170-177, January 22, 1959)

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Photofluorography in Tuberculosis Control

The primary goal of the Tuberculosis Control Program in the Navy is to prevent dissemination of this communicable disease through detection of personnel suffering from tuberculosis in its earliest stages. Thus, the exposure of healthy associates to the disease is minimized and treatment of these individuals can be accomplished at a time when the best results can be obtained. Periodic evaluation of the effectiveness of the program, which has been described elsewhere, is necessary to insure that this objective is being obtained to a degree that makes continuation of the program economically and medically worthwhile. The present study was made to find how effective a contribution routine photofluorographic screening makes to the program. Primary interest lies in the periodic or annual photofluorogram.

The pilot study reported which utilized a sampling technique was considered to be one method of evaluating this program. The particular objective was to determine the percentage of cases of established tuberculosis brought under treatment as a result of original detection by routine photofluorographic procedures, this being the principal case finding method applicable to the Navy and Marine Corps as a whole. The assumption is made that detection by photofluorographic screening resulted in early isolation and therapy of cases which might have progressed for some time before symptoms or some other illness would have resulted in discovery of their disease. Thus, a more prolonged exposure of infected personnel to their associates was prevented. The study had these specific objectives:

1. To determine the proportion of total cases of tuberculosis occupying beds at the two special treatment hospitals during the year 1955 which had originally been detected by photofluorographic screening.
2. To determine what proportion of the cases discovered by photofluorography were detected by routine periodic 70 mm. photofluorography
3. To determine the actual time spread between periodic examinations in the cases reviewed.
4. To determine the proportion of cases of tuberculosis revealed only in a second reading of the photofluorograms.

Routine chest roentgenographic examinations are made of both military and civilian personnel upon their entering service, upon their separation from service, and at annual intervals when practicable. Survey x-ray inspections are taken in almost all instances by 70 mm. photofluorographic techniques. An immediate interpretation of the film is made at the various stations and 14 by 17-inch films are ordered for those individuals whose 70-mm. films reveal suspicious findings. If the suspicious area is verified by the 14 by 17-inch film, the service man is sent to a naval hospital for consultation or admission as appropriate. Each month, all 70-mm. films that have been taken are mailed to the Tuberculosis Control Section of the Bureau of Medicine

and Surgery, Navy Department, Washington, D. C., where they are again reviewed. The films are accompanied by a log that gives adequate identification of each film by the interpreting physician. If a 70-mm. film that was interpreted as negative in the field is found to be suspicious in the course of re-reading, a request for follow-up is sent to the activity where the individual is stationed. Personnel with chest disease suggested as being tuberculous are isolated, studied, and treated in United States Naval hospitals, with further transfer of such patients to established pulmonary diagnostic and treatment centers at St. Albans, N. Y., and San Diego, Calif.

A Table shows the total number of cases reviewed and the reasons for their admission to hospitals. They are classified as to whether the patients were admitted because of symptoms referable to chest conditions; or were discovered by use of 70-mm. photofluorograms; or because of unrelated conditions and later found to have tuberculosis.

A second Table classifies the patients who were admitted because of routine 70-mm. photofluorographs into separate categories according to reasons for the photofluorograph. These are subdivided into entrance examinations, separation examinations, re-enlistment examinations, and routine periodic examinations.

The routine annual periodic examination of all personnel on active duty was responsible for 61% of all cases discovered by 70-mm. photofluorography. Also, of the 301 cases reviewed, it was responsible for 34% of the total. It is of interest to note that 24 cases of active pulmonary tuberculosis were discovered in enlistment films, which is 8% of the total cases reviewed. Some of these individuals had previously been examined by a chest x-ray film before coming on active duty and their films interpreted as negative. Others failed to have a preinduction film taken due to lack of facilities or for other reasons.

A third Table reveals the time interval in each of the three main groups since the last film was taken, with a further breakdown of subdivisions under 70-mm. film.

A fourth Table is a compilation of the results of second reading of films at the Bureau of Medicine and Surgery. The value of such a second reading has been proved many times, but has always been of interest in a strict analysis of how many actual cases of active pulmonary tuberculosis were being discovered by this review.

Of the 168 cases discovered by the 70-mm. photofluorography, 18 (11%) initially interpreted as negative or within normal limits were later proved to show active tuberculosis as a direct result of film review.

The method described in this study was selected for several reasons. In the first place, the data desired for analysis is not always incorporated in medical records, but could be obtained in all cases in the present study by direct interrogation of the hospitalized patient. Secondly, because less than 1% of individuals reported to have abnormal chest x-ray films are finally shown to have active pulmonary tuberculosis, such a sample analysis obviated

the unfruitful search of many records later found to be unsuitable for analysis. Thirdly, because patients with chronic pulmonary disease are generally under observation and treatment at Navy Tuberculosis Centers for an average of 3 or 4 months, the majority of pulmonary tuberculosis cases discovered in the Navy and Marine Corps through the year could thus be personally interviewed when quarterly roster reports were made out. The final tabulations showed this to be true as the cases reported represented approximately 90% of all new cases of active pulmonary tuberculosis discovered in the Navy during this period.

Anderson has said that periodic x-ray film examinations of healthy people is necessary to keep the prevalence of tuberculosis at a low level until better methods are found. Britten and Charter in a previous study of Naval and Marine Corps personnel pointed out that a large number of cases of active tuberculosis were discovered in personnel after years of active service, attesting to the need for periodic chest x-ray film examinations of all personnel over a long period. Other reports of Navy surveys have also indicated the value of photofluoroscopic chest surveys in the U. S. Navy, but none previously have demonstrated how many established cases of tuberculosis are actually discovered initially by the routine periodic x-ray film.

No significant downward trend in the annual number of cases of suspected tuberculosis has been noted in this program. Tuberculosis in all forms was the fifth leading cause of invaliding from the U. S. Naval Service during 1955. It is well known that the mortality rate from tuberculosis has declined steadily since the first of the century. Although this drop has been almost precipitous since the advent of chemotherapy and resectional surgery during the past 10 years, Waring and others have pointed out that, unfortunately, the rate of new cases reported has not shown as marked a fall.

The discovery of 24 cases of active tuberculosis among recruits at induction appears to reemphasize the need for preinduction films and the necessity for careful interpretation of them. The importance of this in enabling the Navy and Marine Corps to exclude infected personnel from possible contact with healthy individuals at training centers and to minimize the number of disability pensions is recognized. It would seem that this is an area of control as yet incompletely solved.

A review of 301 newly discovered cases of active pulmonary tuberculosis among Navy and Marine Corps personnel during 1955 was made. This represented approximately a 90% sample of all such cases discovered during this period. The reasons for hospitalization of these patients included 111 cases (37%) admitted because of symptoms; and 22 cases (7%) discovered to have pulmonary disease after admission to the hospital for unrelated conditions. Of the 168 cases admitted because of abnormal 70-mm. photofluorograms, 102 (61%) were discovered by routine periodic annual examinations as contrasted to 66 (39%) detected at the time of enlistment, re-enlistment into, or separation

from the service. A review or second reading of all films which is accomplished routinely accounted for 18 of these 168 cases.

It is shown in the present study that the majority of new cases of tuberculosis initially diagnosed in the U. S. Navy are discovered by means of photofluorography and the majority of such cases are detected by the periodic (annual) chest x-ray film. (Chace, J.F. CAPT MC USN, Coffay, E.P. Jr. M.D., Role of Photofluorography in Navy Tuberculosis Control: Dis.Chest, XXXV: 22-27, January 1959)

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Post-Myocardial-Infarction Syndrome

A complication of acute myocardial infarction which mimics the post-commissurotomy syndrome and idiopathic pericarditis has been described. The clinical features are fever, chest pain, evidence of pericarditis, pleurisy, pneumonitis, and a tendency to recurrences.

The present article reports additional information obtained in the past 2 years and stresses the danger of anticoagulant therapy in the presence of the post-myocardial-infarction syndrome.

Forty-four patients with recent myocardial infarction whose clinical picture did not conform to the textbook pattern of myocardial infarction were studied. There were prolonged and recurrent fever and chest pain. Relapses occurred frequently and caused prolongation of the clinical course by several weeks or months. Such features are usually attributed to recurrent myocardial or pulmonary infarction. However, in the patients studied, electrocardiographic signs of extension of myocardial infarction were absent and there were no features indicative of phlebothrombosis in the lower extremities or obvious signs of pulmonary infarction. Instead, evidence of generalized pericarditis with effusion often associated with pleurisy and pneumonitis was observed. This triad, which closely resembles the postcommissurotomy syndrome and idiopathic pericarditis has been referred to as the post-myocardial-infarction syndrome.

Recognition of the post-myocardial-infarction syndrome is usually not difficult if one is aware of its occurrence. It may be suspected when the febrile period following the coronary attack lasts longer than a week and is accompanied by pain of pleuropericardial type or when fever and chest pain recur. The diagnosis is confirmed when a pericardial friction rub is audible for 3 days or longer or when it appears late in the course of the illness. Serial x-ray studies show in such cases, more often than not, evidence of pericardial effusion either single or combined with pleurisy and pneumonitis. In a few instances of this series, persistent sinus tachycardia during what appeared to be smooth convalescence after myocardial infarction led to the discovery of complicating pericarditis.

The diagnosis is difficult when pneumonitis is the earliest and dominant feature of the post-myocardial-infarction syndrome—also, when the symptoms of the coronary attack are mild and unrecognized and the patient presents himself first with manifestations of pleuropericarditis. It is advisable, therefore, whenever pericarditis of unknown etiology is present to include the post-myocardial-infarction syndrome in the diagnostic considerations.

The true nature of this complication has remained unrecognized until recently because its manifestations lend themselves readily to erroneous interpretation. When pericardial effusion is present, "enlargement of the heart" seems to be a satisfactory radiological interpretation in the presence of myocardial infarction. Serial x-ray studies can readily correct the error in diagnosis by demonstrating shrinking of the cardiac silhouette. Recurrent chest pain and fever are often mistaken for extension of myocardial infarction. It should be remembered that when the electrocardiogram clearly indicates massive myocardial infarction, prolonged or recurrent chest pain is rarely caused by extension of the infarction but more commonly by pericarditis. The differentiation is readily made by asking the crucial question of whether or not the pain is aggravated by breathing and change in posture. An affirmative answer indicates that pericarditis is present; moreover, the electrocardiogram fails to show new changes which might result from extension of the myocardial lesion.

When chest pain is of pleuropericardial type or when pleural effusion is present, pulmonary infarction is an important differential diagnostic consideration. Evidence of fibrinous pericarditis or pericardial effusion, which is not usually a feature of pulmonary infarction, supports the diagnosis of post-myocardial-infarction syndrome.

Recognition of the post-myocardial-infarction syndrome is important not only with regard to saving the patient and his relatives a good deal of mental anguish, but also with regard to therapy. Anticoagulant therapy, which is used when extension of myocardial infarction or pulmonary infarction is diagnosed, is dangerous and contraindicated in the presence of generalized pericarditis.

Because the condition is self-limited, it may not require any treatment when discomfort is slight or absent. In every case, it is of paramount importance to give the patients convincing reassurance that the complication does not represent another coronary attack and that it is perfectly benign. When pain is a disturbing factor, it should be influenced by salicylates and codeine; in some instances, administration of meperidine or morphine is required.

Adrenal steroids or corticotrophic hormone act almost in a specific way, relieving pain and fever within 24 hours. It is advisable to use the steroids with discretion, reserving this therapy for patients whose pain cannot be relieved by other means or whose course of illness is unduly prolonged necessitating quick and effective therapy in order to lift their shattered morale. (Dressler, W., The Post-Myocardial-Infarction Syndrome, A. M. A. Arch. Int. Med., 103: 28-41, January 1959)

Idiopathic Hypercalcemia

During the past two or three decades, descriptions of several new syndromes have been added to pediatric literature. Whether these are in fact new or only newly recognized is a moot point. Evidence would seem to show that what has been called idiopathic hypercalcemia, if not a new disease, has become a much more common biochemical finding than it used to be. Until recently, it was a rare condition for which there was usually a satisfactory explanation such as hyperparathyroidism, either primary or secondary, sarcoidosis, hypervitaminosis D, the milk and alkali syndrome, or osteoporosis occurring in disease atrophy. It has been stated that hypercalcemia is also found in interstitial plasma cell pneumonia, but the author has not observed such cases; from a study of those reported, it would seem likely that in some if not in all hypervitaminosis D could not be ruled out.

In 1952, Lightwood and Payne described a syndrome occurring in infants which resembled to some extent hyperchloremic acidosis as described by Lightwood in 1935 but in which there was hypercalcemia. This article deals briefly with observations from a study of 38 cases belonging to the latter group.

The ages of the 38 patients at the onset of the hypercalcemic condition varied from 3 weeks to 11 months. None of the infants were breast fed at the time. The onset as a rule was fairly sudden, the story being that of the development of anorexia, vomiting, loss of weight and, of course, constipation in an infant who had been thriving. Thirst was an important symptom, occurring in 19 of the 38 cases, and polyuria was seen less often. Vomiting, constipation, and anorexia were more frequent symptoms than thirst, but because they are common to so many diseases, were of less diagnostic significance. Also, specific inquiries about thirst were probably not always made. Constipation—often a source of worry to the mother—was much more intractable than usual. Hard fecal masses were as a rule readily palpable in the left iliac fossa. The anorexia was characterized by a refusal of solids and semisolids more than of fluids, but nevertheless resulted in considerable dehydration and loss of weight in some cases.

Intake of vitamin D was on the whole far above the average requirements. The vitamin was given soon after birth until the condition was recognized. Intake varied from 200 to 8800 I. U. per day. Twenty-eight of the infants received over 1000 units, twelve over 2000, three over 4000, and eight under 1000 units. In two cases there was no history of vitamin D intake either as such or in the milk. It may be significant that 27 of the 38 infants received the vitamin as vitamin D₂. The infants who had received in part vitamin D₃ had never been given more than 400 units.

Few abnormalities were noted on physical examination. Perhaps the most important finding was the presence of a certain amount of wasting and of slight dehydration. The infants were apathetic but not irritable, the lips

were dry, the eyes were slightly sunken, and the muscle tone and tissue turgor were generally poor. These manifestations were seldom, if ever, severe enough to cause alarm. The abdomen tended to be scaphoid, and scybalous masses in the colon were easily palpable.

Fever was not a feature, and infection other than that found in the urinary tract was uncommon. Eleven of the 38 infants had mild pyuria which was peculiarly resistant to treatment and tended to recur with a different causal organism.

The severity of the signs and symptoms bore no relationship to the level of the serum calcium, nor did improvement necessarily take place when the serum calcium returned to normal. Indeed, it was noted that improvement might be delayed several weeks; if treatment is omitted too soon, the serum calcium level might become elevated again within a week or 10 days.

The clinical picture was such that a provisional diagnosis of hypercalcemia was often made in the outpatient department to be confirmed later by the finding of a serum calcium of over 12 mg. per 100 ml. For a period, routine serum calcium estimations were made on all infants under one year of age admitted to the wards and a few unsuspected cases were found.

Of the known causes of hypercalcemia, only the milk and alkali syndrome and hypervitaminosis D need be considered.

Forfar and associates suggested that there is a disturbance of cholesterol metabolism probably induced by infection. They found that the serum citrate level and the urinary output of citrate were both low during the active stage of the disease—a finding in contrast to the high figures usually obtained in hypervitaminosis D. They also noted that a low calcium intake induced a negative calcium balance and lowered the level of the serum calcium to normal without necessarily causing clinical improvement.

Creery suggested a parallel with the milk and alkali syndrome described by Cope as occurring in patients with peptic ulcer on treatment with large intakes of milk and alkali and in whom the serum calcium, serum phosphorus, and blood urea are raised. Alkalosis may occur in infants with high intestinal obstruction (pyloric stenosis) or in older children with poor renal function following alkali administration, and although the total serum calcium may rise slightly—as it does in gastric tetany—levels of 12 mg. per 100 ml. are seldom found.

Broadly speaking, the clinical picture of idiopathic hypercalcemia, namely, anorexia, listlessness, constipation, and thirst with polyuria and slight dehydration, is similar to that ascribed to hypervitaminosis D. Likewise, the biochemical findings are in keeping with such a diagnosis, a raised serum calcium and serum phosphorus and an increased excretion of phosphorus in the urine. The latter finding is present even when the serum calcium has returned to normal following the use of cortisone or low calcium milk and can be taken as evidence that homeostasis is not achieved

at once; it provides an explanation of the persistence of the clinical picture in the presence of a normal serum calcium content.

The clinical picture of idiopathic hypercalcemia is described and evidence adduced that the etiologic factor concerned is the intake of vitamin D. The hypercalcemia is due to excessive intake, the impurities which vitamin D₂ contains, or to hypersensitivity of the infant. (Graham, S., Idiopathic Hypercalcemia: *Postgrad. Med.*, British Commonwealth Issue, 25: 67-72, January 1959)

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Pituitrin for Bleeding Esophageal Varices

The therapy of the acute bleeding from esophageal varices has had numerous and varied approaches both surgical and nonsurgical in nature. The multiplicity of approaches which have been suggested indicates a lack of satisfaction with any single regimen and the consequent need for therapeutic additions and improvements. Surgical Pituitrin or Pitressin administered intravenously to experimental animals resulted in a temporary fall in portal pressure and, therefore, their use was proposed as a supplement to other methods of controlling hemorrhage from esophageal varices. Clinical experience suggests that these drugs are very effective in the control of the acute bleeding episode and that they are also helpful in diminishing the marked bleeding encountered during transesophageal ligation of varices. In addition to the beneficial effects noted clinically, direct measurements of portal vein pressures in patients with portal hypertension have demonstrated that intravenous surgical Pituitrin results in a significant decrease in portal pressure under these conditions.

Intravenous surgical Pituitrin or Pitressin was used therapeutically in 11 patients with acutely bleeding esophageal varices. The estimated blood loss prior to institution of therapy varied between 25 and 1000 cc. Ten of these patients were alcoholic cirrhotics. The other patient's varices were secondary to thrombosis and cavernomatous transformation of the portal vein. In all instances, the presence of varices was confirmed by esophagogram or esophagoscopy.

In a group of 9 patients, 25 distinct episodes of acute bleeding were treated with prompt control 22 times. The gastric aspirate cleared 5 to 20 minutes after the completion of intravenous Pituitrin or Pitressin. The vital signs and microhematocrit determinations showed stabilization and later improvement with transfusion. In several instances, bleeding recurred after an interval of quiescence ranging from 6 hours to several days and Pituitrin was used to control the second and other subsequent episodes.

The management of acutely bleeding esophageal varices remains a difficult problem. In the patient with significant liver dysfunction—especially

with jaundice—anesthesia and surgery frequently precipitate hepatic failure and coma. Nevertheless, immediate surgical attacks, either by transesophageal ligation or portacaval anastomosis, have been proposed in view of the unsuccessful results associated with the conservative regimen. Although the injection of bleeding esophageal varices with sclerosing solutions has enjoyed sporadic popularity, the use of balloon tamponade has been the nonoperative method usually adopted for the control of esophageal hemorrhage. Aspiration, asphyxiation due to regurgitation of the inflated esophageal balloon with consequent obstruction of the airway, and ulceration at the site of tamponade have all been reported and experienced in a significant number of instances. An appreciable number of patients have complained of marked discomfort associated with esophageal tamponade and, because sedation is to be avoided with hepatic insufficiency, the problem is greatly intensified.

The lack of complete satisfaction with the tamponade approach and the desire to avoid extensive surgery in a patient with hepatic insufficiency prompted clinical investigation of a method which would intrinsically lower portal venous pressure. Intravenous surgical Pituitrin or Pitressin rapidly decreases portal hypertension and reduces bleeding from esophageal varices with consistent effectiveness. Subsequent to reduction of portal pressure, the turgid veins collapse as evidenced by esophagoscopy and direct inspection during esophagotomy for transesophageal ligation. The edges of the bleeding site can coapt, an hemostatic thrombus can form, and the patient may be tided over for a period during which he is prepared for definitive surgery with a regimen directed at restoring liver compensation.

Surgical Pituitrin and Pitressin are worthwhile additions to the therapy of bleeding varices. Direct portal venous pressure measurements in patients with esophageal varices have demonstrated that intravenously administered surgical Pituitrin results in a rapid and marked decrease in portal pressure equivalent to the level achieved by portacaval shunt. The drugs have proved effective in the control of acutely bleeding esophageal varices and have been helpful in facilitating transesophageal ligation of bleeding varices. It is recommended that an intravenous surgical Pituitrin or Pitressin regimen be given an initial trial in the control of bleeding in view of the distinct advantages over balloon tamponade. (Schwartz, S.I., et al., The Use of Intravenous Pituitrin in Treatment of Bleeding Esophageal Varices: Surgery 45: 72-78, January 1959)

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Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Strangulated Femoral Hernia

A femoral hernia is more likely to undergo acute incarceration and subsequent strangulation than any other common hernia. Strangulation may occur at any time and constitutes an urgent surgical emergency. It is estimated that strangulation occurs in approximately 10% of all femoral hernias. Acute incarceration occurs more frequently in this type of hernia because the small femoral ring through which the herniation occurs is more rigid and because herniation through the defect occurs in a more vertical or downward direction. It is this latter factor, uniquely characteristic of the femoral canal hernia which contributes to the difficulty in reducing it. Once entrapped, the contents of the sac are inhibited in returning to the abdomen by the well defined and narrowed margins of the hernia defect. When interference with circulation occurs, the strangulation affects the contents of the sac and the tissues which make up the sac—the parietal peritoneum, properitoneal tissue, and transversalis fascia.

The sex incidence of all studies on all femoral hernia favors the female. In the present study of 170 acutely incarcerated hernias, 68% were females and 32% were males. There were twice as many males treated in the first half of this period of the study as in the latter half. Out of the total hospital admissions for acute femoral herniation, there were 14 Negro females and 2 Negro males. Thus, Negroes made up 5% of the total patients in this study. Shelby recorded a 2.3% incidence of Negro patients. Because the average Negro census during the years 1941 to 1955 averaged 22%, it appears that femoral hernias may occur with relatively less frequency in the Negro race. As in the case of inguinal hernias, femoral hernias occur on the right side twice as frequently as on the left.

In general, the acutely strangulated hernia containing small bowel produces more pronounced symptoms indicative of mechanical intestinal obstruction. When structures other than small intestine are incarcerated and subsequently strangulated, the symptoms and signs are often less dramatic. The usual history is that of a sudden onset of pain frequently noted in the region of a previously reducible hernia which has become firm and irreducible. The abdominal pain is poorly localized at first and later becomes cramping in nature. The onset of incarceration is associated with increased exertion in approximately one-third of the cases. However, many cases occur with no unusual effort.

Vomiting occurs early and is a prominent symptom. A mass in the femoral region is the most important single physical finding. Many times the mass is completely overlooked and in other instances its significance is often misinterpreted. Acute strangulation of a femoral hernia is a common cause of acute intestinal obstruction among patients more than 50 years of age. If the diagnosis is thought of and properly examined for, the condition is usually not difficult to diagnose.

The classical symptoms of intestinal obstruction are usually present in cases of strangulated femoral hernia. When intestinal colic associated with vomiting suggests a diagnosis of probably acute intestinal obstruction, hernial orifices should be carefully examined for the presence of a mass. With care, a differential diagnosis between a femoral hernia and an incarcerated inguinal hernia can be made. The femoral hernia is palpable below and lateral to the pubic spine, while the inguinal hernia is found to lie superiorly and medially to the pubic spine. Frequently, the femoral hernia mass protrudes forward and upward to partly obscure the inguinal ligament.

The present study on acutely incarcerated and strangulated femoral hernia was undertaken primarily to discover the results of treatment for this condition and the factors significantly effecting these results. Data from available clinical charts was tabulated by I. B. M. machine. Because of the mass of detailed data available with the use of I. B. M. tabulation, only brief comments are made regarding the data presented on mortality. Tables summarize the data succinctly.

There was a total of 42 postoperative complications in 37 cases. The wound infection incidence was 6.6% with 11 patients manifesting some degree of suppuration in operative incisions. The majority of these were noted in patients who had had excision of gangrenous small bowel.

There appeared to be no relationship between prolonged operating intervals and an increase in the number of postoperative complications, but a definite relation was seen—as would be expected—among those cases with other associated diseases. A Table lists the more severe postoperative complications and gives the number of deaths attributable to each of these. Shock accounted for the largest number of postoperative deaths, while atelectasis with pneumonia and shock occurred as postoperative complications most frequently and were seen in 24 instances. Congestive heart failure, renal failure, cerebral vascular accidents, pulmonary embolism, coronary occlusion, phlebothrombosis, and gastrointestinal hemorrhage were problems in other postoperative cases.

The seriousness of delayed or incorrect diagnosis is emphasized. The influence of age, sex, presence of other associated diseases, electrolyte imbalance, duration of operative time, sac contents, and the side affected, on mortality is summarized. An adequate surgical approach is important and the excellence of the Cheatle-Henry extraperitoneal, retro-pubic operation is described.

The over all mortality for this group was 13%. The male operative mortality was 20% while that of female patients was only 10%. Results of this group are compared to other reports. There were 35 bowel resections for gangrenous small bowel with nine deaths, a 26% mortality. No deaths were due to faulty anastomoses. An elective repair of all femoral hernias is advisable. (Rogers, F. A., Strangulated Femoral Hernia - A Review of 170 Cases: *Ann. Surg.*, 149: 9-19, January 1959)

"To Comfort Always"

"To cure sometimes, to relieve often, to comfort always"; this quotation appears on the statue erected to the honor of Francis Trudeau at Saranac Lake. These few words actually summarize the physician's function in his practice of medicine.

In this age of antibiotics, increasing specialization, and laboratory medicine, many of us tend to lose sight of our primary function in the care of patients. Regardless of how specific our diagnostic and therapeutic aids may become, we still must be willing and able to communicate effectively with our patients if we are to function well in the healing of the sick.

Scientific knowledge has become an indispensable tool of the modern physician, and no one can be a good doctor today without competent and adequate scientific training. But more is needed to practice good medicine, which has remained an art while becoming a science. It is today a far-advanced science. But in addition—it has always been and will always be—an art. The secret of healing derives not only from knowledge, but from the human qualities of the healer as well. That physicians of the sixth decade of the twentieth century should have to discover man has a psyche as well as a soma is a travesty on modern medicine. In spite of this apparent "new discovery," many of us still give only lip service to the emotional aspects of the problems of the patient.

There are plenty of capable physicians, the need is for physicians who are nice to people. To some, this art seems to be inherent; to others, it has to be a conscious and planned part of their behavior. We frequently look askance at those members of our profession who have developed the art of being nice to people to such a high degree while allowing their scientific knowledge to deteriorate. These individuals invariably have highly successful practices much to the dismay and chagrin of their more scientifically oriented colleagues. The patients of these physicians are unusually loyal. Because of our disdain for the professional qualifications of this type of physician, many of us swing rather far in the opposite direction. We sometimes erroneously associate the quality of being "too nice" to our patients with professional mediocrity. Nothing could be farther from the truth.

Indeed, one gets the impression when talking with an occasional consultant that he dare not be "too nice" to the patient lest his standing as a consultant be questioned. These individuals, fortunately, are rare. The fact remains that in our training in scientific medicine the art of being nice to patients is insufficiently stressed. It seems ironic that as our scientific knowledge is advancing at such a rapid rate our appreciation of the very basic art of medicine is diminishing with alarming rapidity. Are our viewpoints too limited to encompass the whole picture? Let us not miss the boat in our zeal for more scientific understanding of disease and lose the very

foundation of medical practice—patient understanding. With this quality, the practice of medicine as we know it can withstand any storm. Without it, patients and doctors alike will have a hard road ahead." (Editorial: Journal of the Medical Association of Georgia, November 1958. Reprinted in AMA News, December 29, 1958)

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From the Note Book

1. Rear Admiral B. W. Hogan MC USN, the Surgeon General, attended the Board of Trustees' Meeting of the American Hospital Association, Chicago, Ill., 2 - 3 February 1959. (TIO, BuMed)
2. Rear Admiral E. C. Kenney MC USN, and Captains E. V. Jobe and M. W. Arnold MC USN represented the Bureau of Medicine and Surgery at the 55th Annual Congress on Medical Education and Licensure held in Chicago on 7 - 10 February 1959. (TIO, BuMed)
3. Captain H. A. Weiss MC USN has been elected to Fellowship in the American College of Physicians, and Commander H. A. Baker MC USN has been elected to Fellowship in the American College of Surgeons. (BuMed)
4. About 438 million acute illnesses involving either restricted activity or medical attention or both occurred among the American people during the year ending June 30, 1958. The number of such illnesses averaged 2.6 for every person in the population. (PHS, HEW)
5. Prolonged low back disability in 100 cases treated at a rehabilitation center were studied in the hope of revealing useful information aiding in the management of such patients. These represented a hard core of industrial invalids refractory to prolonged medical and surgical treatment. The mechanism of psychogenic back pain is discussed and suggestions made for physical, pharmacological, psychological, and vocational treatment. (Indust. Med. & Surg., January 1959; E. E. Gordon, M. D.)
6. Acute ataxia in children is thought to be symptomatic of various infections or toxic encephalopathies which affect the cerebellum predominantly. Observations made in 15 cases suggest mumps, poliomyelitis, influenza, varicella, and intoxication from insecticides as possible etiologies. It has been reported in association with rubeola, rubella, smallpox, scarlet fever, typhoid, infectious mononucleosis, diphtheria, and drug intoxication. The prognosis for complete recovery is good. (A. M. A. J. Dis. Child., January 1959; G. M. Lasater, M. D., J. T. Jabbour, M. D.)

7. Aspiration pneumonia is a pulmonary problem that may present a great deal of diagnostic difficulty and is frequently neglected in the differential diagnosis of pulmonary lesions. Aspiration pneumonia may result from: aspiration of oils-lipoid; food and gastric secretions; foreign bodies; and infected materials. (Dis. Chest, January 1959; I. R. Besman, M.D., H. A. Lyons, M.D.)
8. Twenty-three cases of fungus and other granulomatous diseases of the lung are reviewed. Skin tests, serologic data, cultures and smears, examination of biopsy material, geographic data, and bronchoscopy are all valuable adjuncts in the diagnosis of the indeterminate pulmonary lesion. Deficiencies and pitfalls with these aids are enumerated and stressed. (Arch. Int. Med., January 1959; J. H. Sands, M.D. et al.)
9. Penicillin reactions have produced over 1000 deaths in this country. Reactions are increasing steadily in frequency and severity. This article reviews the subject and presents 4 case reports proving for the first time that penicillin contaminating milk causes allergic reactions. (Arch. Dermat., January 1959; M. C. Zimmerman, M.D.)
10. In many cases of ocular palsy due to head injury, spontaneous recovery occurs, but in others there remains a constant deviation of the visual axes associated with diplopia. This article is based on experience of treating 70 patients with ocular palsy due to head injury during an 8-year period. (Postgrad. Med. J., January 1959; T. Keith Lyle)
11. Fifteen cases of carcinoma of the breast treated by operation with skin grafting were given postoperative radiation in full therapeutic doses, the graft in part or in full being included in the treatment field. The tolerance of skin grafts to radiation therapy approximates that of normal skin. (Ann. Surg., January 1959; R. W. Cram, M.D. et al.)
12. During the past year, the Surgeon General of the Public Health Service, Department of Health, Education, and Welfare, awarded more than \$1,000,000 in grants and fellowships for nursing research. These funds will support 15 research studies and enable 12 nurses with bachelors degrees to train for research careers. (PHS, HEW)
13. This report discusses 3 types of pulmonary granuloma: sarcoidosis, histoplasmosis, and noninfectious necrotizing granulomatosis. An attempt is made to select material and to emphasize aspects of these diseases which are not familiar to many roentgenologists. (Am. J. Roentgenol., February 1959; B. Felson, M.D.)

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Right to Drive

More than four human lives are sacrificed on the roads of America every hour. Traffic fatalities are a major cause of death in the United States. Frankly, the problem threatens to become far worse unless the people readjust their thinking and adopt a more realistic attitude toward the citizen who—although law abiding in all other respects—repeatedly violates traffic regulations.

In terms of the grief and suffering which he causes, the careless, indifferent or irresponsible motorist is as great a threat to this country as the most vicious criminal gunman.

Yet disrespect for traffic regulations has become so commonplace throughout the United States today that in the minds of many motorists it is fashionable to exceed the speed limit, to drive through stop signs, to pass other cars on hills and to "run" a traffic light if no police cars are in sight. Reputable citizens—persons who would never think of committing other types of violations—run the gamut of traffic offenses without suffering the slightest pangs of conscience.

Loud protests have been raised against the use of radar to detect speeders and, thereby, to make the roads safer for all. Police officers who stop violators are sneered at and subjected to insults. Many offenders complain about the "inconvenience" of having to appear in traffic court. Warnings, pleas, and educational programs have made the least impression where the need for them has been the greatest possible.

The time has come for the American people to stop tolerating the arrogant disrespectful attitude which so many motorists openly display toward the traffic codes. Drivers who prove by their own actions that they constitute a menace to themselves and others must be denied the privilege of operating motor vehicles.

In areas where the existing laws are inadequate to meet the problem, new and more realistic traffic codes should be adopted. Motorists who are guilty of repeated offenses, as well as those who have intentionally placed the lives of other citizens in jeopardy, must be treated as the public menaces they are. Whenever it is in the public interest to do so, maximum fines and long jail sentences should be imposed upon offenders.

Each year, traffic accidents claim thousands of American lives. The senseless slaughter and crippling of human beings on the roads have reached staggering proportions. This problem must be met immediately with forceful, positive action.

The price of failure has become far too great—more than four human lives per hour. (J. Edgar Hoover, Home and Highway: Military Medicine, 124: 66, January 1959)

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Anesthetic Difficulties

Occasional reports of difficulties with anesthetics are received by the Bureau of Medicine and Surgery, primarily from ships and small stations where a qualified anesthesiologist is not available. Spinal anesthesia is the type most commonly utilized in most emergency surgical procedures aboard ship and at small stations.

Procaine hydrochloride in the dosage of 150 mg. is usually satisfactory for one hour of good spinal anesthesia, but may last only thirty-to forty-five minutes in some young muscular individuals.

Pontocaine hydrochloride (tetracaine hydrochloride) in the dosage of 10 to 12 mg., when diluted with 5 to 10% dextrose solution will give one and one-half to two hours of good spinal anesthesia.

Pontocaine hydrochloride (tetracaine hydrochloride) is usually preferred to procaine hydrochloride as the anesthetic agent of choice for spinal anesthesia if anesthesia of longer than thirty to forty-five minutes is required to perform surgical procedures aboard ship and at small stations where a qualified anesthesiologist is not available.

When spinal anesthesia is no longer adequate to perform surgery at small stations and aboard ship, open drop ether is the anesthetic agent of choice in the hands of personnel other than an experienced anesthesiologist, even though the ether may vaporize so rapidly in warm climates that it may be very difficult to maintain adequate anesthesia in an adult patient. This difficulty may be minimized to some extent by using the semi-open technique for drop ether. The technique is the same as for open drop ether with the exception that a towel is wrapped about the ether mask in a chimney-like fashion. Some degree of rebreathing is then instituted. This permits a greater concentration of ether to be inhaled than by the open method.

(ProfDiv, BuMed)

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Board Certifications

American Board of Internal Medicine

CDR Herbert L. Walter MC USN

American Board of Neurological Surgery

LCDR Benjamin L. Crue, Jr. MC USN

American Board of Pathology

LT Laudie E. McHenry, Jr. MC USN

American Board of Radiology

LT Ronald W. Glover MC USN
LT Robert Licht MC USNR (Active)
LT William O. Pischnotte MC USN (Nuclear Medicine)
LCDR Alfred E. Rawl, Jr. MC USN

American College of Surgeons

CAPT Herman F. Burkwall MC USN

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Recent Research ReportsNaval Dental Research Facility, NTC, Bainbridge, Md.

1. Survey of Dental Health of the Naval Recruit. XI, Relation of the Formal Education of the Recruit's Father and Mother. NM 75 01 26.04, 15 November 1958
2. Survey of Dental Health. XII. Relation of Brothers and Sisters. NM 75 01 26.04, 30 November 1958.
3. Survey of Dental Health. XIII. Relation of Opinions toward Dentistry. NM 75 01 26.04, 15 December 1958.

Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Polynucleotides VII: The Interaction of Polyriboadenylic and Polyribouridylic Acids. NM 02 01 00.01.07, 21 August 1958.
2. Inhibition of Polynucleotide Phosphorylase through the Formation of Complexes between Acridine Orange and Polynucleotides. NM 02 01 00.01.06, 5 September 1958.
3. Free Energy Changes of the Glutaminase Reaction and the Hydrolysis of the Terminal Pyrophosphate Bond of Adenosine Triphosphate. NM 02 05 00.04.01, 9 September 1958.
4. Microstructure of the Human Tooth. B. Investigation of the Initial Enamel Lesion by Polarization, Fluorescence, and Microradiographic Techniques. NM 75 01 00.02.01, 12 September 1958.
5. Enthalpies of Hydrolysis of Glutamine and Asparagine and of Ionization of Glutamic and Aspartic Acids. NM 02 05 00.04.02, 22 September 1958.
6. Report of Project Strato-Lab: A Study of Changes in Human Physiology Produced by Flights into the Stratosphere. Memorandum Report 58-7 related to NM 13 01 00.01, 22 September 1958.
7. Relationship of Oxygen Debt to Blood Lactate and Pyruvate in Exercised Dogs. NM 004 006.04.01, 3 October 1958.

8. Relationship of Oxygen Debt to Blood Lactate and Pyruvate in Respiratory Hypoxia. NM 004 006.04.02, 3 October 1958.
9. Interpretation of Urinary N¹⁵-Excretion Data Following Administration of an N¹⁵-Labeled Amino Acid. Report No. 3, NM 007 009, 3 October 1958.
10. Pattern of N¹⁵-Excretion in Man Following Administration of N¹⁵-Labeled L-Phenylalanine. Report No. 2, NM 007 009, 3 October 1958.
11. Proteolytic Enzymes as Probes of the Secondary Structure of Fibrous Proteins. NM 01 01 00.02.08, 23 October 1958.
12. Preparation of Large Intact Unsupported Evaporated Films. NM 71 01 00 .07.01, 23 October 1958.

Naval Medical Research Unit No. 3, Cairo, Egypt

1. Cardiopulmonary Studies in Schistosomiasis. Report No. 5, The Clinical Aspects of Schistosomal Cor Pulmonale, NM 72 01 03.4.05, June 1958.
2. Bilharzial Bladder Neck Obstruction. NM 52 02 03.4.01, July 1958.

Naval School of Aviation Medicine, Pensacola, Fla.

1. Auditory and Non-Auditory Effects of High Intensity Noise. Subtask No. 1, Report No. 7, NM 13 01 99, 2 June 1958.
2. Massed and Distributed Practice in Learning to Track a Moving Target. Subtask No. 6, Report No. 6, NM 14 01 11, 5 September 1958.
3. Personal Influence as a Factor in Contract Decisions. Subtask No. 1, Report No. 17, NM 16 01 11, 9 September 1958.

Naval Medical Research Unit No. 2, Taipei, Taiwan

1. Titration of Smallpox Vaccines from Ten Countries Sent to East Pakistan during the 1958 Smallpox Epidemic. NM 52 11 02.4.1, 18 August 1958.
2. Recurrence of Asian Variant Influenza in the Far East. Report of 1958 Epidemic in U.S. Marines on Okinawa. NM 52 05 02.4.1, 16 October 1958.

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BUMED INSTRUCTION 6260.6A

14 January 1959

From: Chief, Bureau of Medicine and Surgery

To: All Ships and Stations Having Medical Corps Personnel Assigned

Subj: Hearing Conservation Program

Encl: (1) Outline of Hearing Conservation Program
(2) Selected Glossary of Applicable Terms
(3) Bibliography

This instruction provides a guide for the establishment and implementation of uniform and effective hearing conservation programs throughout the Naval and Marine Corps Establishments. The basic objective of this program is to prevent hearing loss in personnel assigned to areas of high noise intensity. BuMed Instruction 6260.6 is canceled.

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BUMED INSTRUCTION 5711.1

16 January 1959

From: Chief, Bureau of Medicine and Surgery

To: Ships and Stations Having Medical/Dental Personnel

Subj: Procedures for disposition by medical installations of Allied patients

Encl: (1) North Atlantic Treaty Organization Standardization Agreement
No. 2061

This instruction promulgates for information and compliance the North Atlantic Treaty Organization Standardization Agreement No. 2061. Previously issued regulations or directives in conflict with enclosure (1) are to be held in abeyance pending revision or specific cancellation.

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BUMED INSTRUCTION 6120.11B

20 January 1959

From: Chief, Bureau of Medicine and Surgery

To: Ships and Stations Having a Flight Surgeon or Aviation Medical
Examiner

Subj: Physical qualification certification by the Federal Aviation Agency of
Navy, Marine Corps, and Coast Guard personnel

Ref: (a) Art. 15-59 (5), ManMed

This instruction is promulgated for guidance of flight surgeons and aviation medical examiners with respect to physical examinations and physical qualifications of candidates for Federal Aviation Agency Second Class Airman's Medical Certificates, the processing of the Report of Medical Examination, Standard Form 88, and the issuance of the aforementioned certificate. BuMed Instruction 6120.11A is canceled.

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DENTAL**SECTION**New Endodontics Training Films

The premier showing of Endodontics, a group of three training films produced by the staff of the U. S. Naval Dental School and the Audio-Visual Division of the U. S. Naval Medical School was held at the Naval Dental School, National Naval Medical Center, Bethesda, Md., January 23, 1959.

The showing was attended by members of the American Dental Association's Council on Federal Dental Services, by high-ranking dental officers of the Armed Forces, representatives of other Government agencies; officials of local civilian dental organizations, and by others interested in dental and audio-visual education.

The filming of Endodontics was undertaken as part of the Navy Dental Corps' continuing program to provide its Dental officers with current knowledge on patient care and to promote dental education in general. The 16. mm. sound and color films, each of which runs for 45 minutes, cover (1) diagnosis and case selection, (2) biomechanical preparation, and (3) filling the root canal.

The films, MN-8566ABC, Endodontics, A, Diagnosis and Case Selection, B, Biomechanical Preparation of the Root Canal, C, Filling the Root Canal, will be available under general distribution through District Film Libraries next summer. Until then, a limited number of films may be procured by letter request to Chief, Bureau of Medicine and Surgery (Code 3163), Navy Department, Washington 25, D. C.

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Letter of Commendation

The Surgeon General, Rear Admiral B. W. Hogan, recently awarded a letter of commendation to Lieutenant Ethan C. Allen DC USN for ". . . outstanding work in providing dental care to alleviate pain for the approximately two hundred children in the Casa Materna Orphanage while attached to the U. S. Navy Support Activity, Naples, Italy, from July 1957 to January 1959 . . . You unselfishly and with no thought of recompense or recognition devoted much of your off duty time to this humanitarian work. This willingness

to give of your professional skill to needy children who are unable to obtain care from other sources is in the highest tradition of the health professions and reflects credit on our Navy and on our country. "

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RESERVE SECTION

Tissue Bank Training Course

A two-week Tissue Bank Training Course offered at the Naval Medical School, National Naval Medical Center, Bethesda, Md., is now available to any eligible inactive Naval Reserve Medical officer. This training may commence on any Monday morning and provides orientation in the operation and administration of a tissue bank.

The training includes: (a) indoctrination in the methods of tissue procurement; (b) storage and dispensing; (c) tissue culture; (d) tissue chemistry; (e) processing excised tissue and allied short and long-term research projects in the tissue culture and tissue chemistry fields; (f) indoctrination in the medico-legal aspects of homotransplantation; (g) the procedure for obtaining permission for tissue donations; and (h) familiarization with the operation of the Tissue Bank Registry and all other administrative practices associated with tissue banking.

Reserve Medical officers from the First, Third, Fourth, Fifth, Sixth, Eighth, and Ninth Naval Districts may attend this course on a limited quota basis authorized by the Chief of Naval Personnel. Security clearance is not required.

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Medical Military Training

A two-week course in Medical Military Training beginning 9 March 1959 will convene at the Naval Medical School, NNMC, Bethesda, Md.

The first week will be devoted to Medical Aspects of Special Weapons and Radioactive Isotopes with particular reference to personnel casualties from atomic explosions. The second week will be devoted to professional topics of concern to military medicine including discussions on Reserve medical programs of the Armed Forces. As this course has new subjects,

new material, and has been revamped to bring it up to date, it is highly recommended that officers repeat this training in the event they have participated in previous classes.

Naval Reserve Medical Department officer personnel from the First, Third, Fourth, Fifth, Sixth, Eighth, and Ninth Naval Districts may attend on a limited quota basis. No security clearance is required.

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Convening Dates for Pest Control Courses

Two-Week Active Duty Training Course in Disease Vector Control

New convening dates are listed below for the 14-day AcDuTra course in Disease Vector Control, Vector Control Center, U.S. Naval Air Station, Jacksonville, Fla. The new schedule offers this course every other month instead of monthly with the exception of June and August when the course will be given twice during these two months.

Convening Dates for Calendar Year 1959

9 February	through	20 February
6 April	through	17 April
1 June	through	12 June
15 June	through	26 June
3 August	through	14 August
17 August	through	28 August
5 October	through	16 October
7 December	through	18 December

This course is open to all Reserve personnel, both officer and enlisted.

Four-Week Basic Course in Pest Control

New convening dates are listed below for the basic course in Disease Vector and Economic Pest Prevention and Control. The new schedule extends the course from three weeks to four weeks and is offered every other month instead of quarterly.

Convening Dates for Calendar Year 1959

2 March	through	27 March
4 May	through	29 May
6 July	through	31 July
7 September	through	2 October
2 November	through	28 November

The course is open to all active duty officer and enlisted personnel. Military civilian employees engaged in pest control activities are also eligible and are urged to attend. Billeting and messing facilities are available at U.S. Naval Air Station, Jacksonville 12, Fla., for both military and civilian personnel attending the course.

Attendance quotas. Attendance quotas for these courses are allocated and may be requested by communicating directly with the Officer in Charge, Disease Vector Control Center, U.S. Naval Air Station, Jacksonville 12, Fla.

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AVIATION MEDICINE DIVISION



Flash Blindness and Chorioretinal Burns Produced by Atomic Flash

Two separate, although related, conditions may be produced by atomic flash. One is flash blindness, a temporary incapacitation produced by visible light, and the other is retinal burn produced by a combination of visible and infrared light. Their implications from a disaster standpoint are quite different.

Flash blindness is due to the bleaching of the retinal photosensitive chemicals by bright light. The duration of the incapacitation produced depends on the brightness of the items one must see after the flash is over. In daylight this is not a serious problem. The pupils will be smaller and will admit only 1/50th as much light as at night and the visual task will ordinarily be much brighter. There may be a temporary scotoma in the field of vision, but unless a burn is produced it will disappear and it is not visually incapacitating. At night, visual disability will exist up to half an hour if the source of illumination of the visual task is a moonless sky. Any increase in brightness of the visual task will reduce the disability time proportionately. The blink reflex is of little value in protection against flash blindness because of the extreme intensity of the light. The exact effect in any individual case will depend on the brightness to which the eye is exposed (whether looking toward the fireball or away), the reflectance of surfaces, and protection afforded by buildings, overhanging structures, hats or protective filters. The reflectance of the background and of the atmosphere varies

so much that distances at which flash blindness can be expected will vary tremendously. With nominal bombs, at night, in the open, and with the subject facing the direction of the detonation, it can be expected at distances of over 35 miles.

Effective filters to prevent flash blindness usually also prevent the individual from doing anything useful. This is true except for special filters designed with sharp cutoffs to permit certain specialized visual tasks utilizing narrow bands of monochromatic light. If a period of warning is given, the individual can cover both eyes to prevent both flash blindness and retinal burns. If he must see during the warning period, a patch may be worn over one eye to protect the retinal adaptation in that eye even though the uncovered one is dazzled by the flash. The patch may then be placed over the eye with flash blindness so it can adapt and be protected in the event of a second flash later while the previously protected eye is used for seeing.

The effect of flash blindness on implementation of civil defense planning will depend on adequate warning, and on the success with which knowledge of the condition has been previously imparted to civil defense personnel.

Chorioretinal burns are a related phenomenon. Their production depends on the lens system of the eye forming an image of the fireball on the retina. The visible and near infrared light (400-1,250mq) energy is absorbed by the retinal and choroidal pigment. The distance to which these can be produced depends on pupillary size, clarity of the atmosphere, and size of the bomb. They can be produced by a nominal bomb to distances over 35 miles when the air is clear. Again, so much energy is delivered before the blink reflex that it is not effective in preventing this lesion. Pupillary size is important, thus making this much more of a night-time than daytime hazard. The direction of the visual axes is much more important than point of focus. While the latter has some effect on the area of the retinal image, it is not significant in attenuating the energy per unit area in it. Unless the image of the fireball is formed on the macular area, the permanent effect will be a scotoma in the peripheral field similar to that of the physiological blind spot. It differs in that it will be in the same position in both eyes, thus giving a true symmetrical binocular scotoma. This will not ordinarily be a serious visual defect. However, if it is imaged on the macula bilaterally, this will result in a permanent central scotoma with vision reduced to 20/200 (peripheral acuity). This lesion can occur outside the danger zone of any other atomic effect except fall-out.

Neither of these conditions requires civil defense planning for treatment. Recovery from flash blindness will take place in about half an hour. If the energy is high enough to produce a burn, it is not painful because the retina has no pain endings and it requires no dressing. In severe burns, it may be desirable to use steroids to reduce the inflammatory reaction and subsequent scarring of the retina, but no emergency treatment is required. The temporary effect of flash blindness is probably a much greater hazard

to effective civil defense action than is the permanent burn. Civil defense efforts in regard to these conditions should be directed toward education to prevent flash blindness in at least one eye and the understanding that if it does occur, normal vision will return shortly. Such understanding may be helpful in the prevention of panic. (Guest Editorial, Brigadier General V.A. Byrnes, USAF (MC), J.A.M.A., 168: 6, 11 October 1958)

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Pulmonary Bone Marrow Embolism in Accident Reconstruction

A search for pulmonary emboli may provide valuable information as to the timing of injuries relative to death. In so far as the significance of minor degrees of fat embolism is in some dispute while bone marrow embolism is generally agreed to arise from bone fracture, it was thought that the latter might provide more definite information than the former.

One hundred and two aircraft accident fatalities who had sustained bone fracture have been examined for pulmonary bone marrow embolism. The incidence discovered was 40.2% positive cases which is considerably higher than has previously been reported. Some cases were examined more thoroughly than others and many positive cases must have been missed as a result of sampling error. An analysis of the findings indicates that if 5 blocks from the lungs are examined as a routine, the incidence of bone marrow embolism in aircraft accident cases approximates 60%.

It is suggested that the general belief in the comparative rarity of bone marrow embolism stems from the examination of an inadequate amount of material.

Bone marrow embolism is far less common in cases where 4 or more long bones are fractured; it is less common in cases where more than six ribs are fractured; and it is less common in the presence of skull fracture, the majority of such fractures being very severe in aircraft accidents. It is concluded that the absence of pulmonary bone marrow embolism is generally associated either with sufficient trauma to produce widespread and instantaneous death of all components of the body or with injuries resulting in instantaneous paralysis or destruction of the cardiovascular system. The presence of emboli indicates that the subject had a functioning circulation after the body injury was sustained.

Emboli can appear with great speed, 30% of "immediate" deaths being positive for bone marrow emboli. If life persists for a few minutes, the proportion of markedly positive cases increases. On survival for hours, emboli become increasingly difficult to find, but at about 2 to 5 hours may be replaced by marrow cell masses in the pulmonary veins. Fat embolism of the lungs appears even more rapidly after injury and, within minutes,

increase in amount similarly to bone marrow embolism. At a few hours, however, there is no corresponding fall off. Fat embolism of the lungs not only resolves far more slowly than bone marrow embolism, but may go on to be fatal. It is suggested that an analysis of pulmonary fat and bone marrow embolism may give useful confirmatory evidence as to the survival period after injury.

These findings may well be applied in accident reconstruction and, as an example, deaths arising from normal and abnormal ejections are analyzed.

In the former, which are generally low level escape attempts, a normal body strikes the ground sustaining multiple severe injuries, often including cardiac rupture; bone marrow emboli would not be anticipated in such circumstances. In the latter, particularly when associated with spontaneous seat firing, non-fatal bony injury commonly occurs before ground impact; the conditions are then ideal for the production of emboli.

All spontaneous ejections in the series save for one exceptional case showed bone marrow emboli in the lungs. Of the premeditated fatal ejections, all those negative for emboli were simple low level cases except one whose heart was penetrated during descent. Four uncomplicated low level cases were mildly positive for emboli, but all four were alive when found on the ground; in two other mildly positive cases, there was evidence of injury before or during ejection. No uncomplicated low level cases occurred in the markedly positive group which included three cases very liable to have fouled their seats during descent. A fourth case sustained a fractured spine at the time of ejection while the last was the only case in the series who died from pulmonary fat embolism.

Therefore, it seems that it may be possible to differentiate normal from abnormal fatal ejection attempts according to whether or not pulmonary bone marrow embolism is present.

The small number of cases comprising the series dictates that this article must be of an interim nature, reporting an impression only. It is suggested that further study should be undertaken to prove or disprove the hypotheses put forward. (Wing Commander J.K. Mason, RAF Institute of Pathology, Halton, England)

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Anthropometric Data

Many flight surgeons participated in making anthropometric measurements on their pilots last spring. The data has now been reduced using a computer. The Air Crew Equipment Laboratory will further evaluate the data and issue a U.S. Navy report on this subject.

For the curious, here are some of the tabulations that have been made:

WEIGHT

Mean: 167.55 (.17)
 Standard Deviation: 6.04 (.12)
 Range: 118.00 - 228.00
 Coefficient of Variation: 3.60 (.07) %
 Size of Sample: 1300

OVERALL HEIGHT

Mean: 70.20 (.13)
 Standard Deviation: 4.70 (.09)
 Range: 60.00 - 78.50
 Coefficient of Variation: 6.70 (.13) %
 Size of Sample: 1293

PERCENTILE VALUES

%	Pounds
1	126.9
2	131.3
3	133.7
5	137.6
10	143.9
15	148.1
20	151.9
25	155.3
30	157.8
35	160.5
40	163.4
45	165.6
50	167.8
55	170.0
60	172.0
65	174.0
70	176.5
75	179.4
80	182.4
85	186.5
90	190.4
95	197.9
97	202.7
98	205.5
99	212.1

PERCENTILE VALUES

%	Inches
1	64.9
2	65.7
3	65.9
5	66.3
10	67.2
15	67.8
20	68.2
25	68.7
30	69.0
35	69.3
40	69.7
45	69.9
50	70.2
55	70.5
60	70.8
65	71.1
70	71.4
75	71.8
80	72.1
85	72.5
90	73.2
95	74.1
97	74.8
98	75.1
99	75.9

SITTING HEIGHT

Mean: 36.01 (.16)
 Standard of Deviation: 5.80 (.11)
 Range: 31.25 - 41.00
 Coefficient of Variation: 16.10 (.32) %
 Size of Sample: 1294

SHOULDER HEIGHT

Mean: 24.63 (.16)
 Standard Deviation: 5.58 (.11)
 Range: 20.50 - 33.00
 Coefficient of Variation: 22.65 (.47) %
 Size of Sample: 1293

PERCENTILE VALUES

%	Inches
1	32.4
2	32.9
3	33.1
5	33.5
10	34.2
15	34.6
20	34.9
25	35.1
30	35.3
35	35.5
40	35.6
45	35.9
50	36.0
55	36.1
60	36.4
65	36.5
70	36.8
75	37.0
80	37.1
85	37.5
90	37.9
95	38.3
97	38.9
98	39.1
99	39.8

PERCENTILE VALUES

%	Inches
1	21.9
2	22.1
3	22.4
5	22.6
10	23.0
15	23.3
20	23.5
25	23.7
30	23.9
35	24.0
40	24.2
45	24.4
50	24.5
55	24.7
60	24.9
65	25.0
70	25.1
75	25.4
80	25.6
85	25.9
90	26.3
95	27.0
97	27.3
98	27.6
99	28.9

ARM REACH

Mean: 30.61 (.17)
 Standard Deviation: 6.07 (.12)
 Range: 22.25 - 41.00
 Coefficient of Variation: 19.82 (.40) %
 Size of Sample: 1295

LEG LENGTH

Mean: 42.46 (.14)
 Standard Deviation: 5.17 (.10)
 Range: 35.00 - 57.75
 Coefficient of Variation: 12.18 (.24) %
 Size of Sample: 1291

PERCENTILE VALUES

%	Inches
1	24.4
2	24.7
3	24.8
5	25.0
10	25.5
15	26.1
20	27.7
25	28.9

PERCENTILE VALUES

%	Inches
1	36.8
2	37.3
3	37.8
5	38.3
10	39.3
15	39.8
20	39.8
25	40.3

Percentile Values (continued)

30	29.8
35	30.2
40	30.7
45	31.0
50	31.3
55	31.6
60	31.9
65	32.2
70	32.5
75	32.8
80	33.1
85	33.4
90	33.7
95	34.3
97	35.3
98	35.6
99	36.1

Percentile Values (continued)

30	40.8
35	41.3
40	41.3
45	41.8
50	42.3
55	42.3
60	42.8
65	43.3
70	43.8
75	43.8
80	44.3
85	44.8
90	45.3
95	46.3
97	47.3
98	47.8
99	48.8

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Utilization of Squadron Flight Surgeons

A recent report of an air group flight surgeon on the death of one of his pilots intimated that if that flight surgeon had not been required to remain on the flight deck during all flight operations he could have discovered that the deceased pilot was suffering from flight fatigue before his fatal flight was initiated.

It is difficult to prove or disprove the above hypothesis, but the existence of such a concept focuses attention to the sagacity of assuring freedom of action by the squadron flight surgeon as is necessary.

It is alleged that on some ships a flight surgeon is required to be present on the flight deck during all flight operations and must not leave the flight deck during such operations unless relieved by a doctor. No instruction to this effect has ever been published by ComNavAirLant or by any higher authority. If any such order is in effect on any NavAirLant ship, consideration of revision of such order is recommended.

AirLant/AirPac CV Medical Instruction 5400.1, chapter 1, section 3, places the responsibility of direction of an embarked flight surgeon upon the medical officer of the ship. Therefore, it would be wise for each carrier medical officer to so write his standing orders as to avoid any rigid instruction requiring the squadron flight surgeon to be on the flight deck during ALL flight operations. This would give the flight surgeon freedom to be at such locality as to permit him to "Determine by close observation and appropriate clinical investigation the physical and psychological fitness of flight personnel."

The flight surgeon can contribute much to aviation safety by his presence on the flight deck at flight quarters and at other times. Indeed, that area is his usual station for General Quarters. However, during flight quarters it may be wise for the flight surgeon to be in the ready room where pilots for the next launch are being briefed and are suiting up. He might wish to make a last minute check on the physical condition of a specific pilot. He may be needed in the sick bay for surgery or emergency care. Finally, as often occurs on CVS carriers, flight operations can extend over many hours; it might be wise to have the flight surgeon rest and leave the first aid duties of the flight deck to a well trained hospitalman. Severe injuries usually require examination, electrolyte replacement, transfusion, anesthesia, and surgery. The number of medical officers on a carrier is limited. Is it wise to so wear down a doctor by having him stand extended first aid watches on the flight deck as to make him ineffective when his services as a graduate of medicine are sorely needed? It is hard to conceive of any therapy other than first aid which could best be performed by a doctor on the flight deck. Finally, all ship's doctors must realize the heroism of releasing personnel from a burning or wrecked plane is not their privilege. That is the privilege and responsibility of men properly clothed and trained to do the job. It is the duty of a doctor to so protect his hands and arms as to be useful in performing the technical procedures that are expected of a graduate of medicine.

In conclusion, it is desirable but not essential for a flight surgeon to be on the flight deck at flight quarters. Rigid restriction should be in effect only when the number of doctors on board is adequate to cover the need for a doctor elsewhere.

Certainly, by properly presenting these concepts to their respective air officer, executive officer, and commanding officer, each senior medical officer will enjoy the understanding and cooperation of these officers. (ComNavAirLant Special Edition, Medical News Letter, 26 September 1958)

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Letter of Commendation

Lieutenant R. H. Tabor MC USN has been awarded a Letter of Commendation by the Secretary of the Navy for service as set forth in the following citation:

"For outstanding performance of duty while serving as the Flight Surgeon and a Test Officer on the Full Pressure Suit Evaluation Project being conducted by Air Development Squadron Three, U. S. Naval Air Station, Oceana, Virginia, and the Full Pressure Suit Training Unit,

U. S. Naval Air Station, Norfolk, Virginia, from 5 to 8 September 1958. Entirely dependent upon the full pressure suit to protect him from the effects of extreme simulated altitudes during a continuous 72-hour period in a low pressure chamber, Lieutenant Tabor reached a maximum altitude of 139,000 feet and remained at an altitude higher than 80,000 feet for 38 hours of the test period, the longest time man has ever been subjected to such extreme simulated or actual altitudes. By his outstanding professional knowledge, he was able to determine, observe, and report accurately and objectively the biological effects incident to this test, thereby providing valuable information relating to the future improvement of the full pressure suit. Lieutenant Tabor's initiative, leadership, and devotion to duty were in keeping with the highest traditions of the United States Naval Service."

Lieutenant Tabor is presently assigned to duty with Air Development Squadron Three, U. S. Naval Air Station, Oceana, Va. By the letter of commendation he has been authorized to wear the Commendation Ribbon with Metal Pendant.

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The 1959 Aero Medical Association Meeting

The Aero Medical Association will hold its 30th annual meeting at the Statler Hotel, Los Angeles, Calif., on 27, 28, and 29 April 1959. Approximately one hundred and twenty-five (125) professional papers will be presented in three simultaneously conducted sessions. The scientific program has been arranged under the direction of Brigadier General Don Flickinger, USAF (MC), Chairman of the Scientific Program Committee. The Navy, Air Force, and Royal Canadian Air Force will present scientific exhibits, and the leading drug and equipment companies will exhibit their latest advances in aviation medicine. Reserve officers may receive retirement point credits for attending this meeting.

The Wives' Wing of the Association has developed an extremely attractive program for the ladies. Your wife will have a wonderful vacation in Los Angeles.

It is hoped that government air transportation for many active duty flight surgeons can be made available. All flight surgeons are urged to attend this meeting. Here you will have an opportunity to see more flight surgeons than at any other time. Make your plans to be present and to participate in the scientific deliberations and the social events. Bring your wife to join in the program of the Wives' Wing. This will be the best meeting of them all.

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Aviation Toxicology

"Teflon," the trade name for a plastic resin, is ideal as a seal or washer for moving parts. It provides a practically friction free surface which is free of water absorption. It is also used as insulation for electrical wiring. Unheated, it is completely non-toxic. At 400° F., a gas is given off known as perfluorisobutylene. This gas is colorless, odorless, and as toxic as phosgene. At 1000° F., almost 20% of the hydrolytic products of Teflon consists of this poisonous gas. Mechanics should be warned against using torches in the presence of this plastic. Furthermore, they should be warned that waste products of Teflon should be buried rather than burned. (Extract from ComNavAirLant Medical News Letter of September 1958)

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Walking Blood Bank

Most ships have some form of blood donor lists prepared. Many smaller units would be wise to do the same. The following is an excerpt from a report written by Doctor R.G. Merritt, one-time Medical Officer for the USS ALBANY. "A 'Blood Bank Log' was compiled with a page for each of the eight blood types (A positive, A negative, B positive, B negative, AB positive, AB negative, O positive, and O negative). The name of each person being studied was entered on the page of his blood type along with his rate, service number, and division, in order to facilitate immediate contact when necessary. Studies were continued until a sufficient number of persons of each were obtained. Kahn tests were repeated at intervals to guard against syphilitic infection and results recorded in the log." (Extract from ComNavAirLant Medical News Letter of September 1958).

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CAA Now FAA

Effective in early 1959, the Civil Aeronautics Administration became a part of the newly organized Federal Aviation Agency. Mr. E. R. Quesada is Administrator of the FAA. Doctor J. E. Smith, formerly Chief, Medical Division, CAA, is Acting Civil Air Surgeon. Your attention is invited to the recently issued BuMed Instruction 6120.11B which pertains to the issuance of FAA Second Class Airman's Medical Certificates to qualified Navy, Marine Corps, and Coast Guard personnel.

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Flight Time

The following message has been received in BuAer and is quoted below:

"Pass to all Navy and Marine Air Activities your cognizance. Refer OpNav Instruction 3710.15B, Para. 5 B, C, & D. All minimums are waived for remainder of fiscal year."

Paragraphs 5 C and D refer to the annual minimum flight hour requirements for flight surgeons.

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New JCAP Officers

The Joint Committee on Aviation Pathology has announced the election of CAPT Carl E. Wilbur MC USN as Chairman and CAPT Murray W. Ballenger MC USN as Secretary. The JCAP encourages basic and applied collaborative research in aviation medicine and pathology.

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CAA Now FAA

Effective in early 1959, the Civil Aeronautics Administration became a part of the newly organized Federal Aviation Agency. Mr. E. R. Quast is Administrator of the FAA. Doctor J. E. Smith, formerly Chief, Medical Division, is now Acting Civil Air Surgeon. Your attention is invited to the recent instruction 5150.11B which pertains to the issuance of FAA Section 119 Airman's Medical Certificate to qualified Navy, Marine

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